

The Use of Vanadium in Flat Rolled Products

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Introduction

Microalloying, using vanadium, has been a feature of the manufacture of high strength, formable, tough, flat rolled steels since the start of their more widespread production and use in the late 1950's/early 1960's. It is the purpose of this paper to give some data on the consumption of vanadium, as a whole, and to look at some of the reasons why vanadium is used in flat rolled steels.

1. Consumption of Vanadium

By far the majority of vanadium consumed, worldwide, is used by the steel industry.

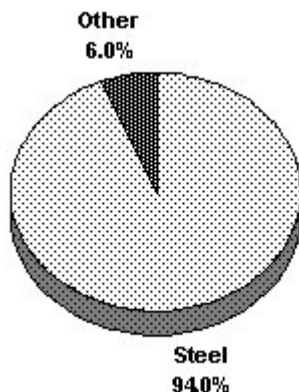


Figure 1 Consumption of vanadium in steel and other industries.

Figure 1, compiled from data in the US Geological Survey⁽¹⁾ indicates that, in 2004, 94% of vanadium used was consumed by the steel industry and 6% by all other uses.

Figures 2 and 3 show data on steel production and vanadium consumption over a number of past years.

Figure 2 indicates that in 2004 steel production reached a record level of 1.036

billion tonnes, driven largely by increases in steel production in China.

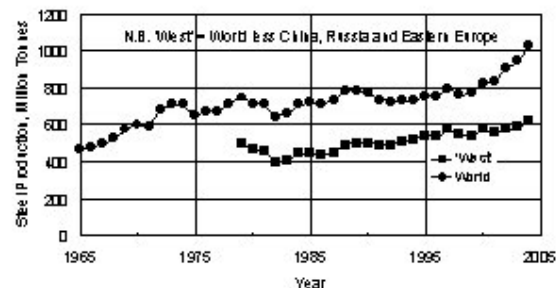


Fig. 2 Steel Production in the world and the "West".

Figure 3 illustrates that this record steel production was accompanied by record vanadium consumption, at an estimated level of 55300T of vanadium. While consumption of vanadium did increase in all major economies, the increase was particularly marked in China driven by, among other uses, the use of vanadium in high strength reinforcing bars.

It is important to note that not only did the overall consumption of vanadium increase but its consumption intensity increased also.

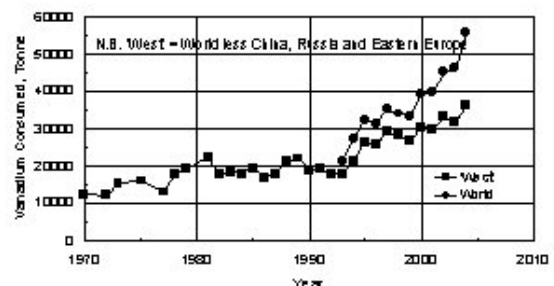


Fig. 3 Vanadium consumption in the world and the "West".

Figure 4 shows that, worldwide, in 2004 this reached a new level of 0.053kgV/tonne of steel produced.